

Presentation: Guest Lecture for Founder's Day Celebration at Delaware Valley College  
Induction as a University

URL: <http://www.delval.edu/about-delval/annual-traditions/founders-day>

Title: Using Science Skills to Understand Ecophysiology and Manage Resources

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#### Abstract

Presentation will be for a general audience and focus on plant science and ecosystem science in NASA. Examples from the projects involving the presenter will be used to illustrate. Specifically, the California Sacramento-San Joaquin River Delta project. This collaboration supports the goals of the Delta Plan in developing science-based, adaptive-management strategies. The mission is to improve reliability of water supply and restore a healthy Delta ecosystem while enhancing agriculture and recreation. NASA can contribute gap-filling science understanding of overall functions in the Delta ecosystem and assess and help develop management plans for specific issues. Airborne and satellite remote-sensing, ecosystem modeling, and biological studies provide underlying data needed by Delta stakeholders to assess and address water, ecosystem restoration, and environmental and economic impacts of potential actions in the Delta. The California Sacramento-San Joaquin River Delta, the hub for California's water supply, supports important ecosystem services for fisheries, supplies drinking water for millions, and distributes water from Northern California to agriculture and urban communities to the south; millions of people and businesses depend on Delta water. Decades of competing demands for Delta resources and year-to-year variability in precipitation has resulted in diminished overall health of the Delta. Declines in fish populations, threatened ecosystems, endangered species, invasive plants and animals, cuts in agricultural exports, and increased water conservation is the result. NASA and the USDA, building on previous collaborations, aide local Delta stakeholders in assessing and developing an invasive weed management approach. Aquatic, terrestrial, and riparian invasive weeds threaten aquatic and terrestrial ecosystem restoration efforts. Aquatic weeds are currently detrimental economically, environmentally, and sociologically in the Delta. They negatively impact the redistribution of water and disrupt the ecology of the Bay Delta food web. Filling current science gaps in the Delta Plan and improving management practices within the Delta are important to achieving the mission of improved Delta health. Methods developed can become routine land and water management tools. New high-resolution NASA sensor systems could be used to provide data packages specifically designed for water system The presenter will also speak about his personal experience and the role Delaware Valley College played in preparation for a professional career science.